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"To Advance the Science of Cold-Blooded Vertebrates."

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Dimorphic Males of *Gambusia* *Affinis*

Gambusia affinis, known locally in Lakeland, Fla., as "blue spot", is interesting not only in its viviparous breeding habits but also in the occasional appearance of a dimorphic male. The general color of the normal male is olive-gray, whereas the dimorphic is light olive-gray, with large irregular black blotches on body and fins.

The appearance, Feb., 1923, of a little blotched minnow on the surface of Lake Hollingsworth, followed and apparently agitated by a small school of similar species but normal color, prompted its immediate capture by members of the zoölogy class of Southern College. It turned out to be a dimorphic male, the first seen after many collecting trips around the lake. Since dimorphic males have been said to occur only in lakes with direct access to the sea and since Lakeland region lakes have no such access—the ocean lying some 40 miles west—it was decided to institute special collecting for this form.

Two weeks later, in a semi-jungle 4 miles east of Lakeland, a student collected another dimorphic male in a small spring which ran into, and formed, a small swamp. Enthusiasm for additional specimens then brought to light three from Lake Hollingsworth, making a total of 5 out of over 300 males collected in 6 months.

Clearly, dimorphic males of this species may be found in inland waters with no direct sea access. They were observed only in the early spring, however.

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A Note on the Breeding Habits of *Sceloporus*

SEVERAL herpetologists have voiced opinions on the possible function of the brilliant blue lateral ventral color patches that distinguish the males of most members of the genus *Sceloporus*. They generally agree in ascribing sexual value and the suggestion has a certain plausibility in its favor. Though its actual demonstration may have come before the eyes of observers, the thing has apparently never been recorded; so I offer the following remarks on the mating conduct of a male *Sceloporus undulatus*, that would seem to provide a corroborating exhibition of color display in nuptial behaviour... In May a freshly captured male, from the pine-barrens of central New Jersey, was placed in reproduced natural environment in a vivarium with two females of *Sceloporus spinosus* from Texas. Within a day or so the male, which showed very brilliant black margined azure ventral and throat patches, attracted my attention during the hours of warm sunshine by his iguanid behaviour: the usual bobbing of the head, accompanied in this instance by inflation of the throat cavity, which resulted in a greater exposure of the blue color. Especially interesting was the act of raising the body by straight-

ening the legs and arching the back, at the same time laterally compressing the ribs until the blue patches on each side of the belly came into view from a point level with the ground. By this action, it seemed, the lizard succeeded in displaying to his companions the blue areas which otherwise, in the normal squatted posture, would be invisible beneath his body. I perceived no immediate reaction among the females; but within an hour or so a demonstration of sexual ecstasy was given when the male was seen attached by his teeth to the nape of one of the females, attempting coition. At the same time with his forelegs he firmly embraced the upper abdomen of his consort, who seemed apathetic and moved about as if eager to be rid of the burden. The male's position was maintained for some 10 min., with occasional coitive attempts, though all in vain. For several days the riding performance was repeated, at times when I had occasion to observe what was going on in the lizard group, yet only once again did I remark the color display and bobbing. Unfortunately for my further interest the male died within a week.

F. G. SPECK

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"Stomach Stones" Again

RECENTLY I found several pebbles in the alimentary canal of a large specimen of *Pityophis catenifer sayi*, the bull snake, recalling a forgotten controversy on gastroliths...

Williston, Barnum Brown (1904) and others had found quantities of small polished pebbles closely associated with Plesiosaurian fossils in Kansas and Dakota and had suggested that these might have created a "gastric mill" for the ancient reptiles much as in the fowls today. Many other cases of gastroliths were reported about the same time in *Science* as found in the stomachs of other vertebrates. Beal reported pebbles in the stomachs of several pigs, "enough to fill the hands of a man". Henderson quotes Hornaday, and Wieland quotes Lucas as stating that seals and sea lions often have an assortment of pebbles in the stomach. Wieland also states that such stones are often found in the stomachs of Florida alligators. Moodie found about 20 somewhat abraded stones in the stomach of the Texas horned toad, *Phrynosoma cornutum*. As the stomach also contained remains of about 200 large red ants, Moodie suggests that in this case the occurrence was probably accidental, that the stones may have been ingested with the ants.

The writer recently collected a female *Pityophis catenifer sayi* measuring 142 cm. with a hard irregular mass in the lower half of the body. Examination revealed in the lower alimentary canal, 17 cm. from the vent, a large irregular pebble, somewhat worn and measuring 45 by 34 mm. Two very small pebbles were located anteriorly to the large one.

The large stone could hardly have been swallowed accidentally; it was much larger than the snake's head and must have caused no little inconvenience in the swallowing.

Perhaps the reptile was in need of a solid meal before hibernating.

EARLE THERON ENGLE

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Editorial note: *Copeia* 76, Dec., 1919, contained a note by Ernest G. Holt, describing the swallowing of a stone nest egg by *Elaphe obsoleta* and referring to another snake's swallowing a porcelain one. Oliver P. Medsger described a similar occurrence in *Copeia* 81, Apr., 1920. I have known of a china doorknob in a snake's belly. Possibly Mr. Engle's observation as well as the other can be explained by snakes' failure to discriminate between real and nest eggs.

Additional Notes on *Hyla* *Phaeocrypta* (?)

MR. VIOSCA'S OBSERVATIONS on *Hyla phaeocrypta* Cope in *Copeia* 122 recall to my memory an experience of many years ago in the bottom-lands of the Wabash and tributary streams near Mt. Carmel, Ill. The bird-like notes described by Mr. Viosca were frequently heard by me in the woods, so distinctly bird-like that I was constantly looking for the unknown bird; in fact, there was a "standing reward" offered to my boy friends for a specimen never discovered. Some years later, when my father moved to a farm near Wheatland, Ind., I learned from him that it was a tree-frog.

Whether *Hyla phaeocrypta* or not, the species is so abundant in the bottom-land woods that at certain seasons (if my memory is not at fault, in late summer or autumn) its clear, loud, piping notes — as different as possible from the croak of *H. versicolor* — were the dominant and often the only sound to be heard.

ROBERT RIDGWAY

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A Note on the Distribution
of the Wood Turtle
Clemmys Insculpta
(Le Conte)

WHILE on the staff of the Iowa State Agricultural College at Ames, Iowa, I found a specimen of the wood turtle, *Clemmys insculpta* (Le Conte). It was collected June 28, 1923, from among some floating algae at the edge of a small artificial lake, part of a natural stream flowing through the college campus, and is now in the collection of the college's zoölogy department.

The presence of the turtle in Iowa did not at first interest me particularly because I had seen many in New York state. In looking up distribution, however, I noticed that the species had not previously been reported west of Ohio. Its range is generally given as northeastern United States from Maine to Pennsylvania (inclusive) and westward to Ohio. This specimen, therefore, increases the range west to beyond the Mississippi and would indicate that other specimens might be looked for in intervening territory.

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